# Rhodora

JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

**Vol. 38.** **May, 1936.** **No. 449.**


## CONTRIBUTIONS FROM THE GRAY HERBARIUM OF HARVARD UNIVERSITY—NO. CXIII.


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(Plates 412–434)[1]

During the studies necessary in a thorough revision of Gray's *Manual* much new or newly interpreted matter is inevitably accumulated. The following items assembled during the past two years are here published in the more extended form which, of course, will be impossible in the condensed work, when eventually finished. In a few cases, the new *Potamogeton* for instance, plants slightly outside the manual-range are discussed.

### I. A NEW PONDWEED FROM TENNESSEE

In May, 1933, Professor H. M. Jennison, swimming across Clear Fork River in Morgan County, Tennessee, found himself dragging ashore strands of a flowering pondweed, of which he brought material to the Gray Herbarium. In my recent *Linear-leaved North American Species of Potamogeton*[2] there was no provision for Jennison's plant, unless under *P. bicupulatus*. The material was barely in flower, but it lacked the rounded axillary lower spikes and had much longer-peduncled emersed spikes and larger floating leaves with 9–23, instead of 5–7 nerves. The plant not being *P. bicupulatus*, I suggested the possibility that it might be the long unknown and wholly provisional


[1] The photography and preparation of the engraver's blocks have been made possible through grants to the author from the Milton Fund for Research and the Wyeth Fund of the Division of Biology, both of Harvard University. The cost of reproduction in Rhodora has been most generously defrayed by Mr. Bayard Long.


[2] Mem. Am. Acad. xvii[1].—Mem. Gray Herb. no. iii. (1932).

*P. Purshii* Tuckerm. Am. Journ. Sci. ser. 2, vi. 228 (1848). Now, thanks to the activity of Dr. H. K. Svenson, we have a fine suite of material of Jennison's plant in fruit and some in flower showing that it is a species unique in many characters and as closely allied to the subsection *Nuttalliani* (*P. epihydrus* Raf.) as to the subsection *Hybridi* (*P. bicupulatus* Fern., *P. capillaceus* Poir., etc.), in fact standing midway between those two American subsections. Its adnate stipules and linear-filiform, flaccid, submersed leaves without lateral nerves show, also, that it is not wholly unrelated to the primitive subgenus *Coleogeton*.

As to the name *Potamogeton Purshii*, I expressed myself in 1932. The name was published as a provisional one of Tuckerman's, meant to clinch the naming of the species, should some one later carefully work it out:

> The upshot was that upon Pursh's sterile and perhaps unidentifiable specimen Tuckerman made a provisional species: "Should the fruit confirm its apparent claims to be considered a species, it may not inappropriately take the name of *P. Purshii*."

The type of *P. Purshii* has not been studied by subsequent authors and many guesses have been made as to its identity. On account of its inclusion by Tuckerman under his discussions of *P. Claytonii* it has often been supposed to belong with that (*P. epihydrus*, var. *Nuttallii*); but the submersed leaves, as described by Tuckerman, are altogether too narrow. Graebner in Engler, Pflanzenr. iv[11]. 45 (1907) took up *P. Purshii* of "Virginia and Carolina" without question for the boreal species, *P. Oakesianus* Robbins (Newfoundland and the Labrador Peninsula to the Adirondacks, etc., south to New Jersey). Obviously, *P. Purshii* cannot be the latter more northern plant; and its identification must await study of the type. Tuckerman deposited material in many herbaria of his time and the type of *P. Purshii* has not yet been located.

As already stated, *provisional* names, such as *P. Purshii*, are a nuisance. Their authors put them forward in order to occupy the field in case they eventually prove to be worth taking up. Unfortunately, the proposition put forward at the International Congress at Cambridge to reject such names as not validly published, did not win the support it deserved. Until we are allowed to reject such names they will always be a source of uncertainty and instability. The more sources of doubt we can eliminate the sounder will be our nomenclature. In this case, however, with *P. Oakesianus* not found in Virginia and Carolina, it is not probable that the ill-advised name *P. Purshii* will be more than a recurring annoyance.

Although these provisional names were not excluded at the International Congress at Cambridge (1930), they were, most happily, ruled out at Amsterdam (1935). The vague and unsatisfactorily published *Potamogeton Purshii* thus disappears and the question whether Jennison's and Svenson's material belongs to it becomes merely an academic

one except for the geographic interest of knowing whether Tuckerman's plant of "slow flowing streams of Virginia and Carolina" is the same. At any rate, the Tennessee plant may appropriately take the name

POTAMOGETON **tennesseensis,** sp. nov. (TAB. 412), caulibus tenuissimis ad 1.5 mm. diametro 3–6 dm. longis subsimplicibus vel valde ramosis; foliis submersis flaccidis lineari-filiformibus 0.2–0.6 mm. latis uninerviis vel obsolete trinerviis valde lacunatis apice attenuatis basi stipulis hyalinis convolutis obtusis adnatis; foliis natantibus lanceolatis vel lanceolato-oblongis acutis, petiolis plerumque quam lamina foliorum valde longioribus, laminis 2–4 cm. longis 5–13 mm. latis 9–23-nerviis, nervis subtus impressis; pedunculis crassis clavatis 3–8 cm. longis adscendentibus; spicis cylindricis 1–2.2 cm. longis, maturis 4.5–6 mm. crassis; connectivis unguiculatis 2 mm. longis limbo oblatis 1.5 mm. latis; fructu quadrato-orbiculato a latere compresso 3-carinato 2.5–3 mm. longo 2–2.5 mm. lato, basi truncato 0.8–1 mm. lato, dorso semi-orbiculato alato-carinato, carina acuta 0.5–0.8 mm. lata, integra vel remote obtuseque dentata, carinis lateralibus acutis integris, ventre convexo obtusanguli, lateribus inter carinis lateralibus latis planis, rostro marginale erecto 0.4 mm. longo.—TENNESSEE: Clear Fork River, 1 mile north of Rugby, Morgan County, May 28, 1933, *H. M. Jennison*, no. 33–139 (flowering material); abundant in eddies of a rapid stream, Clear Fork, Clarkrange, 20 miles south of Jamestown, Fentress County, July 11, 1935, *H. K. Svenson*, no. 6756 (TYPE in Gray Herb.; isotypes in Herb. Brooklyn Bot. Gard. and elsewhere); Daddy's Creek, by mill south of Crossville, Cumberland County, July 20, 1935, *J. K. Underwood & A. J. Sharp*, no. 2961.

*Potamogeton tennesseensis*, known only from streams of the Cumberland Plateau, at altitudes from 1400 feet (Rugby) to about 1900 feet (Crossville), is a remarkably interesting plant. It bridges the gap which has hitherto clearly separated the *Hybridi*, a purely American subsection of § *Axillares*, and the subsection *Nuttalliani* (*P. epihydrus* Raf.), widely dispersed over temperate North America and reported (though doubted) from Japan. In its almost capillary, submersed leaves (FIG. 2) adnate to the bases of the stipules (FIG. 3) and in the production late in the season of tufts of subcapillary leaves (FIG. 1) from among the dilated ones it inevitably suggests *P. capillaceus* Poir. and the local Alleghenian *P. bicupulatus* Fernald of the *Hybridi;* and the adnate stipules and simple leaf-structure also suggest *P. filiformis* and other members of subgenus *Coleogeton.* Its floating leaves, too, suggest those of *P. capillaceus* and *P. bicupulatus* but they are larger and with 9–23 nerves, the dilated leaves of *P. capillaceus* having 3–7, of *P. bicupulatus* 5–7 nerves. In the number of nerves

these leaves of *P. tennesseensis* more nearly approach those of *P. Spirillus* Tuckerman (5–15) and of *P. diversifolius* Raf. (7–15), but in those species the dilated leaves are blunt or emarginate and the narrowly ribbon-like submersed leaves blunt and at base more adnate to the stipules. In the *Hybridi* all the species have few-flowered and subglobose, sessile or barely peduncled spikes in the axils of the submersed leaves; these are quite wanting in *P. tennesseensis*. In the *Hybridi* all the species have the elongate upper spikes on peduncles but 0.2–3 cm. long and the sepaloid connectives 0.5–1 mm. long (the peduncles of *P. tennesseensis* 3–8 cm. long, the connectives 2 mm. long). In all the *Hybridi* the fruits are strongly compressed laterally, beakless or with beak a minute tooth, the form of the spiral embryo is clearly evident through the thin coat, and the fruits, 1–2.2 mm. long, are usually strongly toothed on the dorsal keel; *P. tennesseensis* has less compressed fruits (FIGS. 5–7) with thick coat completely hiding the form of the embryo, the beak erect and stout, the dorsal and sharp lateral keels entire or essentially so and the mature fruits 2.5–3 mm. long. In the Alleghenian *P. bicupulatus*, which it superficially resembles, the fruits have the sides, between the coarsely dentate-sinuate lateral keels and the ventral margin, cup- or crater-like; in *P. tennesseensis*, however, the sides are essentially flat and the low lateral keels entire.

*P. tennesseensis*, therefore, can hardly be placed in the subsection *Hybridi;* but when we turn to the *Nuttalliani* we meet with the need, if we are to place it there, of redefining the subsection. The submersed leaves of the *Nuttalliani* are ribbon-like and up to 1 cm. broad, with free hyaline stipules; but otherwise, in dilated leaves, thickened base of stem, elongate peduncles, uniform spikes and fruits, *P. tennesseensis* is better placed with *P. epihydrus* than anywhere else in our pondweeds. The general shape of the fruits, with thin, entire dorsal and lateral keels and essentially flat faces, as well as the stout, though short, beak and the curve of the embryo (not shown in the plate) all place it there.

In view of the well known concentration on the Cumberland and other Plateaus of eastern Tennessee and adjacent areas of the old Appalachian upland of relic-species of many groups (animals as well as plants), I am inclined to look upon *Potamogeton tennesseensis* as a persistent remnant of the ancestral series from which the American subsection *Nuttalliani* and the other American subsection *Hybridi*

have diverged, the first toward the development of ribbon-like and quite free submersed blades, the second retaining the adnation of the leaf-bases and stipules and the slender submersed blades but developing the small submersed (cleistogamous?) spikes and the thinner-walled fruits which characterize the subsection.

## II. PILEA IN EASTERN NORTH AMERICA

PILEA PUMILA (L.) Gray, var. **Deamii** (Lunell), comb. nov. *Adicea Deamii* Lunell in Am. Midl. Nat. iii. 10 (1913). PLATE 413, FIGS. 10–15.

The late Dr. J. Lunell proposed to split the temperate North American members of the genus *Pilea* Lindl. (*conserved name*), as *Adicea* Raf., into five species. His *A. fontana* and *A. opaca*, both described from Pleasant Lake, Benson County, North Dakota, have black or blackish fruits, his *A. Nieuwlandii*, *A. Deamii* and *A. pumila* (L.) Raf. having the fruits green to stramineous. The latter series was split on size and degree of branching of plant and size of fruit, both characters which, in an annual weedy group, are very unstable. Individuals with simple stems and low stature (15–25 cm.) were called *A. Nieuwlandii*, those with the stem taller and branching from base were treated as *A. Deamii* and *A. pumila;* but no provision was made for plants with low stature and branching stems and for individuals with simple and tall (sometimes 5–6 dm. high) stems, such as are familiar to every observant field-botanist. As typical *A. pumila* Lunell chose a series of plants from the Potomac Valley, with "Stem reaching a length of 6 dm., with later on spreading branches" and with the leaves 8–16-toothed on each margin. Lunell was not much influenced by the elementary facts, that the basic *Urtica pumila* L. Sp. Pl. 984 (1753) had its "*Habitat in* Canada" and with "Caulis *digiti altitudine*, simplex," for he dismissed these matters as "indicating that Linnaeus made his description from an immature or poorly nourished specimen"; but, getting material of a "Planta 15–25 cm. alta, simplex . . . Folia . . . dentibus 4–7 crasse crenato-serrata," Lunell did not hesitate to describe it as a new species, *A. Nieuwlandii*. Now, it so happens that the Canadian material before me (11 nos.) has stems varying from a "finger's length and simple (Caulis *digiti altitudine*, simplex)" to taller and branching, 0.6–4.5 dm. high, and the leaves have 3–9 coarse rounded teeth on each margin. This is unquestionably *Urtica pumila* L., therefore *Pilea pumila* (L.) Gray.

Typical *Pilea pumila*, with leaves usually cuneate at base and with the largest blades with 3–11 coarse rounded teeth (FIGS. 1–5) is common in southern Canada, from Prince Edward Island to southern Ontario, extending south to Pennsylvania (and locally to Virginia), Tennessee, Iowa and South Dakota. In the South, from Florida to eastern Texas, extending northward to western New York, Ohio, Indiana, Illinois, Missouri and Kansas, *P. pumila* has the leaves (FIGS. 10–13) more often rounded at base, the teeth usually less rounded or even acute and those of the larger leaves numbering 11–17. It is this plant of wide southern and inland range that Lunell described as *Adicea Deamii* "Folia . . . dentibus 6–12 crasse crenato-serrata, basi cuneata vel rotundata," for, although Lunell gave a maximum of 12 serrations, an ISOTYPE in the Gray Herbarium shows the larger leaves (FIG. 10) with 16. By its more commonly round-based leaves with more numerous and commonly less rounded teeth *P. pumila*, var. *Deamii* is well distinguished from typical *P. pumila;* but too many transitions occur to allow their separation as species. Their fruits (FIGS. 14, 15) are of similar shape and smoothness or with quite similar purplish markings.

As to the black-fruited plants called by Lunell *Adicea fontana* and *opaca*, it is notable that they came from the same locality, the former "found on a narrow strip along the boggy margin of a rill, in deep shade, . . . in the woodland of Pleasant Lake, Benson County, North Dakota"; the latter "in damp, but drained soil, well shaded, somewhat distant from the rill where the preceding species thrives." The plant of the boggy and unfavorable habitat grew 4–8 cm. high and was simple (the very reaction of *P. pumila* under such conditions), with "seeds 1.5 mm. long"; while the plant of better "drained soil" near-by reached a height of 3 dm. and branched and its seeds were slightly larger; therefore two species! Rydberg has taken up both of them, as *Pilea opaca* (Lunell) Rydb. in Brittonia, i. 87 (1931) and *P. fontana* (Lunell) Rydb. l. c., but in my own work I am uniting them as *P. fontana* (the name with page-priority), a species character-ized by firm and hardly lustrous opaque small leaves, with relatively short petioles, the black fruits (FIG. 16), as pointed out to me by Mr. C. C. Deam, pale-margined and roughened by low knobs or bosses. It occurs from North Dakota to Nebraska, extending east-ward to western New York. Frequent immature specimens of *P. pumila* have the young fruits darkened in drying, but *ripe* fruits seem to be always pale.

## III. MEMORANDA ON RANUNCULUS

RANUNCULUS FLABELLARIS Raf., forma **riparius**, nom. nov. *R. delphinifolius*, forma *terrestris* Glück, Beihefte Bot. Centralbl. xxxix. Abt. ii. 328 (1923), nec *R. delphinifolius*, f. *terrestris* (Gray) Blake, RHODORA, xv. 164 (1913). PLATE 414, FIGS. 5 and 6.

Unfortunately, the name *Ranunculus delphinifolius* Torr. is not the earliest one available. One of the first definitions of the large Yellow Water-Crowfoot of America was by Jacob Bigelow, Fl. Bost. 139 (1814), who gave a very detailed and accurate account of it, but supposed it to be the Old World *R. fluviatilis* Willd. Our plant is wholly distinct from *R. fluviatilis*, as Bigelow's clear description shows, and the always watchful Rafinesque promptly seized his opportunity. In his review of Bigelow he went through the simplest motions necessary for the designation of a new species; but these were technically enough:

> *Ranunculus fluviatilis*, Big. is *R. flabellaris*, Raf. n. sp.—Raf. in Am. Mo. Mag. ii. no. v. 344 (March, 1818).

In view of the very detailed description given by Bigelow there is no question of the validity of *Ranunculus flabellaris* Raf. (March, 1818). The next name, the one currently in use, is *R. delphinifolius* Torrey in Eaton, Man. ed. 2: 395 (late Spring of 1818). This was put out by Amos Eaton with proper diagnosis and the explanatory note: "A new species by Dr. Torrey; though he suspects it may be a variety of fluviatilis." Subsequently, in Torr. & Gray, Fl. i. 20 (1838) and in his own Fl. N. Y. i. 14 (1843), Torrey treated *R. fluviatilis* Big. and *R. delphinifolius* Torr. as identical; and there seems no reason to doubt their identity. The only question is that of the dates of publication of *R. flabellaris* Raf. and *R. delphinifolius* Torr., both regularly cited simply as "1818." Rafinesque's name was in the March number of The American Monthly Magazine, this preceded by a number designated as of February, 1818, and followed by one for April, 1818; there is no obvious reason to doubt the date.

Eaton's Manual, ed. 2, bears the formal record of copyright, so frequent at that time and so rare today. Richard R. Lansing, Clerk of the Northern District of New York, made the legal memorandum:

> BE IT REMEMBERED, That on the twelfth day of May, in the forty-first year of the Independence of the United States of America, WEBSTERS and SKINNERS, of the said district, have deposited in this office, the title of a book, the right whereof they claim as proprietors, in the words following, to wit:
> "A Manual of Botany of the Northern and Middle States . . . By Amos Eaton, A. M. . . . Second edition, corrected and enlarged."

Eaton's Manual, ed. 2, was issued two months or more later than the March number of The American Monthly Magazine. It is probable that it was not actually distributed to the public until some time later. The copy in the library of the Gray Herbarium has this dedication on the title-page:

*To Dr. Jacob Bigelow, Presented by his friend The Author, Albany, Aug. 4th, 1818.*

Further evidence of the date of issue of Eaton's 2d edition is found on his p. 502, where begin the Additions and Corrections: "After 432 pages were struck off, I received Nuttall's genera of North American plants." This is significant, for Nuttall's Genera of North American Plants . . . to the year 1817, was entered for copyright at Philadelphia on April 3d, 1818:

BE IT REMEMBERED, That on the third day of April, in the forty-second year of the Independence of the United States of America, A.D. 1818, Thomas Nuttall of the said district, has deposited in this office the title, etc.

It is impossible not to note the discrepancy in the two registrations: Eaton's in the District of Northern New York in May, "in the forty-first year of the Independence of the United States"; Nuttall's in the District of Pennsylvania in April, "in the forty-second year of the Independence of the United States." This, surely, reflects only a difference in the method of calculation, not a full year's difference in the copyrights. That Eaton's 2d edition was still only in manuscript in late 1817 is shown by the letters from various dignitaries dated "Northampton, (Mass.) Nov. 24th, 1817" and used by Eaton in his Preface (p. 12).[1]

The reason for giving a new formal name instead of transferring *Ranunculus multifidus*, var. *terrestris* Gray, Man. ed. 5: 41 (1867), the nomenclatural type of *R. delphinifolius*, f. *terrestris* (Gray) Blake, l. c. (1913), must be clarified. Gray, 1. c. (1867), described *R. multifidus*, var. *terrestris* from a collection made at Ann Arbor, Michigan by Miss Clark. It

differs from the ordinary emersed forms by the stems ascending from the base and paniculately several-flowered at the summit, where the leaves are reduced to oblong or linear bracts; no immersed dissected leaves.—Ann Arbor, Michigan, on muddy banks, *Miss Clark*.

[1] Of this letter Eaton said "It is only the last paragraph, which can be interesting to the public." The "interesting" paragraph follows:

"As his class consisted chiefly of ladies, and as these branches of learning have not hitherto generally engaged the attention of the sex; we take the liberty to state, that, from this experiment [Eaton's lectures to them], we feel authorized to recommend these branches as a very useful part of female education."

Every one has assumed that Gray had before him the common terrestrial form (PLATE 414, FIGS. 5 and 6) of *Ranunculus delphinifolius* Torr. (or *R. flabellaris* Raf.). Consequently, we have had the names for the terrestrial form of the latter: *R. lacustris*, var. *terrestris* (Gray) MacMillan, Metasp. Minn. Val. 247 (1892); *R. delphinifolius*, var. *terrestris* (Gray) Farwell, Ann. Rep. Comm. Parks & Boulev. Detroit, xi. 63 (1900); and the combination by Blake above noted. In general it seems to have occurred to none of these authors (nor to myself when I gave a new name to a similar plant) carefully to check the Clark material from Ann Arbor, the type of *R. multifidus*, var. *terrestris* Gray, distinctly marked by him in the Gray Herbarium. This type (our PLATE 415, FIGS. 1–3) does not belong to the coarse *R. flabellaris* or *delphinifolius*, as has been universally assumed, but is the small-flowered plant which was described as *R. Purshii* Richardson, var. *prolificus* Fern. RHODORA, xix. 135 (1917). The comparatively southern *R. flabellaris* (plate 414, FIGS. 1–4) and the more northern *R. Purshii* have very positive differences:

R. FLABELLARIS: Submersed leaves 0.3–1.5 dm. long, ternately decompound into linear-filiform segments; sepals 5–8 mm. long; petals 0.6–1.7 cm. long; anthers oblanceolate to oblong, 1–1.5 mm. long, only slightly broader than the clavate filaments; fruiting heads 8–13 mm. long; mature achenes prominently corky-thickened at base and along the ventral margin, including the beak 2.5–3.5 mm. long.—Maine to Washington, south to North Carolina, Arkansas, Kansas and California.

R. PURSHII: Submersed leaves nearly orbicular, 1.5–8 cm. broad, with 3–5 cuneate linear-cleft lobes; sepals 2.5–4 mm. long; petals 3.5–5 mm. long; anthers ellipsoid, 0.5–1 mm. long, twice as broad as the slender filaments and sharply differentiated; mature achenes not at all or but slightly corky-margined, 1.5–2 mm. long.—Labrador Peninsula to Alaska and Siberia, south to Nova Scotia, northern Maine, Michigan, Iowa, North Dakota, New Mexico and Oregon.

The type of *Ranunculus multifidus*, var. *terrestris* Gray (PLATE 415, FIGS. 1–3) belongs very definitely with *R. Purshii* (FIGS. 5–8), not with *R. flabellaris* (PLATE 414, FIGS. 1–4) and, as already noted, it is the upright paniculate-branched *R. Purshii*, var. *prolificus*. Singularly enough, the name *R. multifidus*, var. *terrestris* Gray cannot be made the basis for a varietal or formal combination under *R. Purshii*, since, in 1842, Ledebour described the terrestrial and creeping form (*R. limosus* Nutt.) of *R. Purshii*, with thick and subglabrous to villous 3–5-parted leaves as *R. Purshii*, var. *terrestris* Ledeb. Fl. Ross. i. 35 (1842) and this plant has been taken up as *R. Purshii*, f. *terrestris* (Ledeb.) Glück, l. c. 330 (1923).

RANUNCULUS AMBIGENS Wats. In 1879 Sereno Watson defined the

coarse, decumbent perennial of wet clay in the northeastern United States, the plant with lance-attenuate and very sharp-pointed leaves, as *Ranunculus ambigens* Wats. Proc. Am. Acad. xiv. 289 (1879). The plant had formerly been confused with the western *R. alismaefolius* Benth. and with the chiefly European (but in Newfoundland and Nova Scotia) *R. Flammula* L. So far as shown by the specimens in the Gray Herbarium, *R. ambigens* occurs from Maine to Illinois, south into Delaware, Maryland and Tennessee; and it is at once distinguished by its coarse, elongate, creeping stem rooting at the nodes, its upper and median leaves long-acuminate, and its achenes tipped by a subulate beak 0.6–1.5 mm. long. There is absolutely no question as to the identity of *Ranunculus ambigens;* and the name was correctly used by Watson & Coulter in Gray, Man, ed. 6, and by Gray in the Synoptical Flora.

In Britton & Brown, Ill. Fl. ii. 76 (1897) the plant is satisfactorily illustrated under the name *Ranunculus obtusiusculus* Raf. Med. Rep. ser. 2, v. 359 (1808); and under this name the species has been known by those who have neither had access to Rafinesque's illustration of his *R. obtusiusculus* nor appreciated the pertinent comments upon it in the Synoptical Flora. The latter memoranda are to the point:

R. OBTUSIÚSCULUS, Raf. l. c. is equally indeterminable, even with the help of a tracing from an original sketch, possessed by the N. Y. Academy of Sciences, which is probably not true to nature, representing cauline foliage of *R. pusillus*, from an annual root, 5-merous polyandrous flowers with persistent linear-lanceolate sepals and a long style.—Gray, Syn. Fl. i[1]. 20 (1895).

A tracing from Rafinesque's figure of his plant shows a slender straight erect stem and single annual root, also linear-lanceolate sepals, all at variance with the stout decumbent commonly geniculate and copiously rooting stem and ovate sepals of the present species. Gray, l. c. 27 (1895).

Rafinesque's original diagnosis is here given:

10. Ranunculus obtusiusculus, obtuse ranunculus; stem upright, simple; leaves petiolated, lanceolated, semi-obtuse, flowers few, terminal. In New-Jersey in marshy places.

That Rafinesque's drawing of an *annual,* with bluntish leaves, leafy-bracted peduncles, gamopetalous corolla, linear or linear-lanceolate sepals, and rounded obovate petals (his fig. 2), is not a recognizable illustration of *R. ambigens*, which is a coarse and obvious perennial, with attenuate leaves, bractless peduncles, ovate sepals and distinct (as in all the genus) oblong petals, should be obvious. Whether Rafinesque's drawing was made from actual material before him may

well be doubted; at least the drawing is so unlike anything now known in Nature that it is probably futile to guess about it, as futile as in many other Rafinesquian propositions. Except for the alternate leaves the drawing of the habit could as well have been made from a vague recollection of *Lysimachia* (*Steironema*) *lanceolata* as from *Ranunculus ambigens*. At any rate, to reject the carefully described *R. ambigens* and to take up for it the wholly vague *R. obtusiusculus* leads directly away from clarity into hopeless obscurity.

*Ranunculus laxicaulis* (Torr. & Gray) Darby, Bot. So. States, 204 (1860), the name taken up in Gray's Manual, ed. 7, may or may not be *R. ambigens*. Darby's own description of a plant from "Ditches Car. to Geo. July" suggests it in some points but Darby's material is unknown; nomenclaturally his species rests upon *R. Flammula*, β. *laxicaulis* Torr. & Gray, Fl. N. Am. i. 16 (1838), the account of which follows:

> β. *laxicaulis:* stem weak, much branched; leaves all entire; lowest ones elliptical-oblong, upper ones linear; petals oblong, attenuate at the base, three times as long as the calyx . . . β. Milledgeville, Georgia, *Dr. Boykin!*

The Boykin specimen, type of *R. Flammula*, β. *laxicaulis* is not at the Gray Herbarium and Dr. Gleason writes me that it cannot be found in the Herbarium of the New York Botanical Garden. Nor have I seen in either herbarium any material from the Atlantic States from south of Delaware and Maryland, although there is a specimen without detailed data at New York said on the copied label to be from Georgia. This, however, is one of the many unlocalized sheets from Chapman, too many of which are open to doubt. The petals of *R. ambigens* only slightly exceed the sepals (sepals 5–7 mm. long, petals 5–8 mm. long); but Torrey & Gray described the "petals . . . three times as long as the calyx." They also had "a weak much branched" plant with "leaves all entire," not a convincing description of the coarse stem (0.5–2 cm. thick at base), simple or only slightly forking, of *R. ambigens*, which has the middle and upper leaves toothed. Their description suggests *R. oblongifolius* Ell.; at least it is unwise to maintain *R. laxicaulis* for the undoubted *R. ambigens*.

RANUNCULUS RHOMBOIDEUS VERSUS R. OVALIS. *Ranunculus rhomboideus* Goldie in Edinb. Phil. Journ. vi. 329—Reprint, 11—, pl. xi. fig. 1 (1822), well described and clearly illustrated by its discoverer, who found it "In dry sandy fields, near Lake Simcoe, Upper Canada

[Ontario Co., Ontario]," is a wide-ranging prairie species which occurs from eastern Alberta to Colorado, thence across the prairies to Ontario, Michigan and Illinois. Goldie correctly showed it with characteristically toothed leaves and it has regularly been thus correctly described or illustrated by later authors. In 1814 Rafinesque gave a characteristically inexact and unrecognizable description of

*Ranunculus ovalis.* Feuilles radicales à longs pétioles, ovales, entières, velues, aigues, les caulinaires rares sessiles lancéolées, fleurs terminales peu nombreuses. *Dans le Canada et Genessee.*—Raf. Précis des Découvertes, 36 (1814), reprinted in Desv. Journ. de Bot. iv. (or vi.), 268 (1814).

A. P. DeCondolle, to whom Rafinesque sent many of his species, could make nothing of *Ranunculus ovalis* and placed it in his "*Ranunculi non satis noti*"—DC. Prodr. i. 43 (1821); but, unfortunately, Hooker, although taking up *R. rhomboideus* Goldie, tried to keep apart from it as species two variations which subsequent experience shows to be mere phases of *R. rhomboideus*. These phases of one species, treated by Hooker as three species, were *R. rhomboideus*, *R. ovalis* "*Rafin.* . . . ?" and *R. brevicaulis* Hook. Fl. Bor.-Am. i. 13, t. vii. A (1829). Hooker gave a good plate of what he took to be Rafinesque's *R. ovalis* as his t. vi B, a fine representation of luxuriant *R. rhomboideus*, which looks as if it might almost have come from Goldie's series of specimens. Hooker, showing the regularly dentate and obtuse basal leaves of *R. rhomboideus*, made the comment: "This species is not at variance with the short character given in Journ. de Bot. of Rafinesque's *R. ovalis*, except that he states the cauline leaves to be lanceolate; by which he means, perhaps, that the segments are so." To render the interpretation of Rafinesque's account more thorough he should have added: "and except that Rafinesque said 'Feuilles radicales . . . entières, . . . aigues', by which he meant, perhaps, radical leaves dentate, obtuse, and except that Rafinesque's plant came in part from Genessee (a county of northwestern New York, organized in 1802), whence no collections have ever been known to the botanists of the State of New York."

The identity of Rafinesque's *Ranunculus ovalis* is utterly vague; but to take up his name of a plant with entire and acute basal leaves and lanceolate cauline ones, a plant said to come from Genessee, for the well defined *R. rhomboideus*, seems like straining for vagueness and inaccuracy. This, however, is done in the Illustrated Flora, where the plant called *R. ovalis*, without interrogation, is shown and described

with "basal leaves . . . crenate or slightly lobed, obtuse, . . . upper cauline leaves . . . deeply divided . . . into 3–7 linear or oblong obtuse lobes"; and the range given, correctly, definitely excludes Genessee. My reasons for maintaining *R. rhomboideus* need no further statement.

RANUNCULUS SEPTENTRIONALIS Poir., var. **caricetorum** (Greene), comb. nov. *R. caricetorum* Greene, Pittonia, v. 194 (1903). *R. sicaeformis* Mackenzie & Bush in Torreya, vi. 123 (1906).

The wide-ranging *Ranunculus septentrionalis* varies, like most members of § *Eurananunculus*, in the degree of pubescence and the direction of its trichomes. It may be quite glabrous, sparingly to copiously appressed-pubescent or sparingly to copiously spreading-hirsute. In the large series from eastern Canada and the northeastern states westward to Manitoba and Nebraska I get no clear lines by which to differentiate the smoother and the more hirsute extremes. Either quite glabrous or very densely hirsute plants occur in Quebec, New England and the Great Lakes region. Var. *caricetorum*, confined so far as I have seen material, to the region from south-central Ohio to Missouri, Iowa and Minnesota has the densest of hirsuteness and this is largely retrorse. In the great density and reflexing of its pubescence the variety is unique; but I find no other characters to separate it from the general run of hirsute or hispid *R. septentrionalis*.

In the effort to brace the specific claims of the retrorsely hirsute plant overemphasis has been given the glabrousness of some specimens of *Ranunculus septentrionalis*. Thus, in his Flora of the Prairies and Plains, Rydberg gives the key differences:

| | |
|---|---|
| Stem glabrous or nearly so | 17. *R. septentrionalis.* |
| Stem decidedly hispid | 18. *R. caricetorum.* |

*R. caricetorum* Greene, Pittonia, v. 194 (1903) was described from "the region of the Great Lakes, from perhaps Ontario to Iowa and Minnesota, . . . diagnosis . . . from material of my own gathering in southern Wisconsin in 1888, and in southern Michigan in 1902": "commonly very hirsute, at least as to petioles and lower part of stem, otherwise sparingly hirsute-pubescent." Rydberg maintains *R. caricetorum*, correctly reducing *R. sicaeformis* (as *R. "sicaefolius"*) to it. The two are identical, but Greene said nothing of the copious retrorse pubescence on leaves and peduncles exhibited by his type-material, and also by the type and the other Missouri specimens of *R. sicaeformis*. Greene said of his Great Lakes plant,

"commonly very hirsute, at least as to petioles and lower part of stem, otherwise sparingly hirsute-pubescent," so that it is clear that he did not understand the true character of his type. Just such plants as Greene's description implies are common about the Great Lakes, thence north to Hudson Bay and east to New England and Quebec. But Mackenzie & Bush were more explicit, saying the "whole plant very strongly whitish or yellowish hispid-pubescent." Besides the type material, they cited also a specimen from Hennepin Co., Minnesota. The latter is like the type of *R. caricetorum*, a photograph of which has been most generously presented to the Gray Herbarium by Dr. Stuart K. Harris, who secured it while visiting Greene's herbarium in 1935. As I view the plants, there is little significance to the degree of pubescence on the stems and petioles; but the plant with dense and *retrorse* pubescence in the southwestern edge of the specific range is very definite.

As to Rydberg's characterization of *Ranunculus septentrionalis* as having "Stem glabrous or nearly so," it is significant that Poiret, in his original description of *R. septentrionalis* said very definitely: "*caule petiolisque basi hirsutis*" and "les tiges . . . velues ou pubescentes à leur partie inferieure." A tracing of Poiret's type in the Gray Herbarium settles its specific identity.

RANUNCULUS FASCICULARIS Muhl., var. **apricus** (Greene), comb. nov. *R. apricus* Greene, Pittonia, iv. 145 (1900).

Very distinct in the region from Mississippi to Oklahoma and Texas, Greene's *Ranunculus apricus* passes northward very clearly into *R. fascicularis*, the plants from Michigan to Iowa having to be somewhat arbitrarily sorted.

## IV. THE NOMENCLATURE OF SASSAFRAS

Enough changes have recently been made in the "proper" specific name of *Sassafras* to suggest that its nomenclature partakes of its nature, as reflected in the illegitimate names *Laurus variifolia* Salisb. and *L. diversifolia* Stokes. One of the most recent discussions of the names is that of Blake, *Note on the proper Name for the Sassafras*, RHODORA, XX. 98 (1918). There Blake pointed out, correctly, that the name *Laurus variifolia* Salisb. (1796) was a mere substitute for *L. Sassafras* L. (1753) and, since there was already a valid specific epithet under *Laurus*, Salisbury's name was illegitimate. Blake, therefore, concluded that "The valid name to replace it is SASSAFRAS

OFFICINALE Nees & Eberm. . . . (1831)." Unfortunately, however, Blake's usually keen logic suffered a momentary and unprecedented lapse, for immediately after asserting that the earliest *valid* name was published in 1831, he made a varietal combination under it, *S. officinale*, var. *albidum* (Nutt.) Blake, based upon Nuttall's species, *Laurus* (*Euosmus*) *albida*, published in 1818. So far as I can yet determine the first *valid* specific epithet for the aggregate species was that of Nuttall and I see no way, under the International Rules, to avoid taking up for the variable species the combination *Sassafras albidum* (Nutt.) Nees, Syst. Laurin. 490 (1836). The bibliography follows:

SASSAFRAS ALBIDUM (Nutt.) Nees, Syst. Laurin. 490 (1836); Raf. Aut. Bot. 86 (1840). LAURUS (EUOSMUS) ALBIDA Nutt. Gen. i. 259 (1818). *Evosmus albida* "Nutt." acc. to Spreng. Syst. ii. 267 (1825) as synonym. *Tetranthera albida* (Nutt). Spreng. Syst. ii. 267 (1825). *Euosmus albida* "Nutt." acc. to Jackson, Ind. Kew. ii. 914 (1893). *S. variifolium*, var. *albidum* (Nutt.) Fernald in RHODORA, XV. 16 (1913). *S. albidum*, var. *glauca* Nieuwl. in Am. Mid. Nat. iii. 347 (1914). *S. officinale*, var. *albidum* (Nutt.) Blake in RHODORA, XX. 99 (1918).

Var. **molle** (Raf.) comb. nov. *Laurus Sassafras* L. Sp. Pl. 371 (1753). *L. Salsafraz* Noronha in Verh. Batav. Gen. v. (1790), Art. iv. 19, modification in spelling. *L. variifolia* Salisb. Prodr. 344 (1796), substitute for *L. Sassafras* (illegitimate). *L. diversifolia* Stokes, Bot. Mat. Med. ii. 426 (1812), substitute for *L. Sassafras* (illegitimate). *S. officinarum* J. S. Presl. Rostl. ii. 68 (1825), not seen. *Persea Sassafras* (L.) Spreng. Syst. ii. 270 (1825). *S. officinale* Nees & Eberm. Handb. Med.-Pharm. Bot. ii. 418 (1831). *S. rubrum* Raf. Sylva Tell. 134 (1838), name only (application inferred). *S. triloba* Raf. Aut. Bot. 85 (1840), based on *Laurus Sassafras*. S. TRILOBA Raf., var. MOLLIS Raf. Aut. Bot. 85 (1840). *S. Sassafras* (L.) Karst. Pharm.-Med. Bot. 505 (1882). *S. variifolium* (Salisb.) Ktze. Rev. Gen. ii. 574 (1891). *Euosmus Sassafras* (L.) "Nutt." acc. to Jackson, Ind. Kew. ii. 914 (1893). *S. Laurus* Macloskie in Torreya, v. 198 (1905). *S. Sassafras officinale* (Nees & Eberm.) Clute in Am. Bot. xi. 72 (1906).

The application of Rafinesque's *Sassafras triloba*, var. *mollis* to the tree with soft-pubescent leaves is clear from his diagnosis: "fol. sepe integris villosis mollis, florib. laxis."

## V. MEMORANDA ON ARUNCUS

ARUNCUS ALLEGHENIENSIS Rydb., var. **pubescens** (Rydb.) comb. nov. *A. pubescens* Rydb. N. Am. Fl. xxii[3]. 256 (1908). PLATE 416, FIG. 4.

The indigenous plants of eastern North America stand well apart from the Old World and western American representatives of *Aruncus*. The wide-ranging Eurasian *A. sylvester* Kostel. (1844) = *Spiraea Aruncus* L. (1753) and *A. Aruncus* (L.) Karst. (1882), has the brownish follicles (FIG. 3) 2.5–3 mm. long, with style (deciduous) 0.3–0.5 mm. long; seeds (FIG. 7) 2.2–2.6 mm. long, with empty tails one-third to one-half as long as the body, the surface coarsely reticulate. Its staminate flowers (FIG. 6) have the calyx-lobes broadly lanceolate, elongate and comparatively thin, displaying the evident midrib; and its leaflets (FIG. 13) are usually very thin, doubly sharp-serrate and long-caudate. The Alleghenian plant, *A. allegheniensis*, however, has the leaflets, although similar, tending to shorter-toothed margin and less elongate tip; but its fundamental differences are in the flower and fruit. The calyx-lobes (FIG. 5) are firm (drying dark), broader and more deltoid, without evident midrib; the olivaceous follicles (FIGS. 1 and 2) 1.5–2 mm. long, with style 0.5–0.8 mm. long; the seeds (FIG. 8) 1.5–2 mm. long, with much shorter or obsolete tails and finer reticulation.

So far as I can make out, *Aruncus pubescens* is an interior variety of *A. allegheniensis*, differing in its heavier and dull (rather than lustrous) foliage, a tendency to greater pubescence on the leaflets, and follicles slightly more slender and elongate (subcylindric and 1.7–2.5 mm. long, instead of semi-ovoid and 1.5–2 mm. long). Plants with the lower leaf-surfaces soft-pubescent occur in the Alleghenies: Allegheny Co., Pennsylvania (*Schafer*, no. 639), Washington, D. C. (*Steele et al.*), Baltimore, Maryland (*P. V. LeRoy*, 1867, ISOTYPE of *A. allegheniensis*), Pulaski Co., Virginia (*Small*) and Glasgow, Virginia (*E. B. Bartram*); but all other material seen by me from Virginia, West Virginia, North Carolina, Kentucky and Tennessee has the lower surfaces quite glabrous. In the more slender-fruited var. *pubescens* (Illinois and Iowa to Arkansas and Oklahoma) the leaflets may, likewise, be either very pubescent, as defined by Rydberg, or quite glabrous beneath: Mikanda, Illinois (*Gleason*), St. Louis, Missouri (*Sherff*, no. 235); and, by a fatality which often pursues those who are incautious in designating types, the MacDonald material from Peoria designated as the TYPE of *A. pubescens* (with leaves "rather copiously hairy beneath") displays no more pubescence than the LeRoy material from Baltimore (in both cases as represented in the Gray Herbarium) which seems to be an ISOTYPE of *A. allegheniensis* (separated from *A. pubescens* by

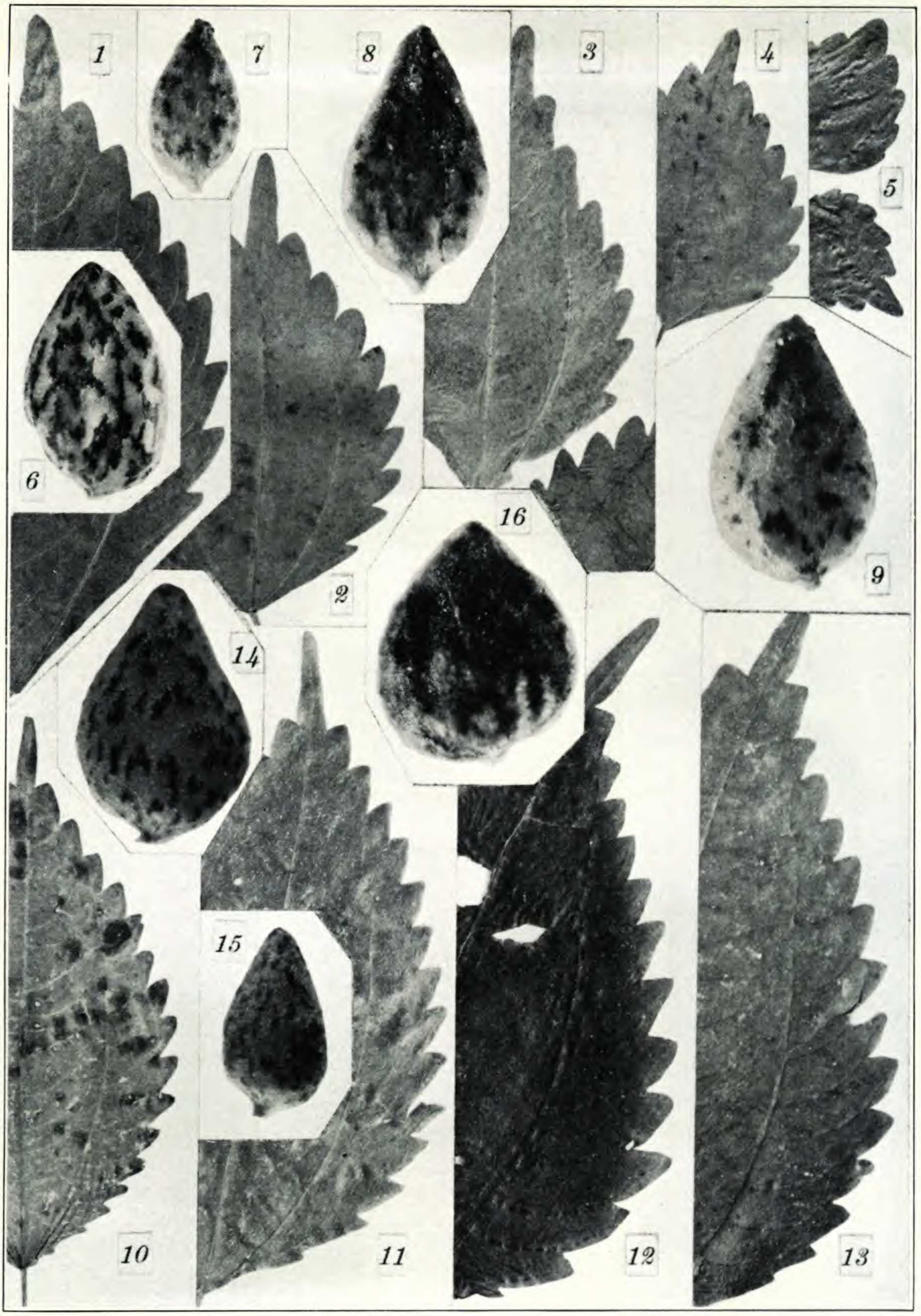


*Photo. E. C. Ogden.*

PILEA PUMILA, leaf-margins, × 1, seeds, × 20: FIG. 1, from Vermont; FIG. 2, from Maine; FIG. 3, from Quebec; FIG. 4, from Maine; FIG. 5, from Prince Edward Island; FIGS. 6 and 7, from Maine; FIGS. 8 and 9, from Massachusetts.

P. PUMILA, var. DEAMII: FIG. 10, from Indiana (ISOTYPE); FIG. 11, from Indiana; FIG. 12, from Ohio; FIG. 13, from Georgia; FIG. 14, from Indiana; FIG. 15, from New York.

P. FONTANA: FIG. 16, from Indiana.


*Photo E. C. Ogden.*

RANUNCULUS FLABELLARIS: FIG. 1, fruiting branch, × 5/12; FIGS. 2 and 3, centers of flowers, × 4; FIG. 4, achene, × 10.

R. FLABELLARIS, forma RIPARIUS: rosette, × 5/12; stranded branch, × 5/12.